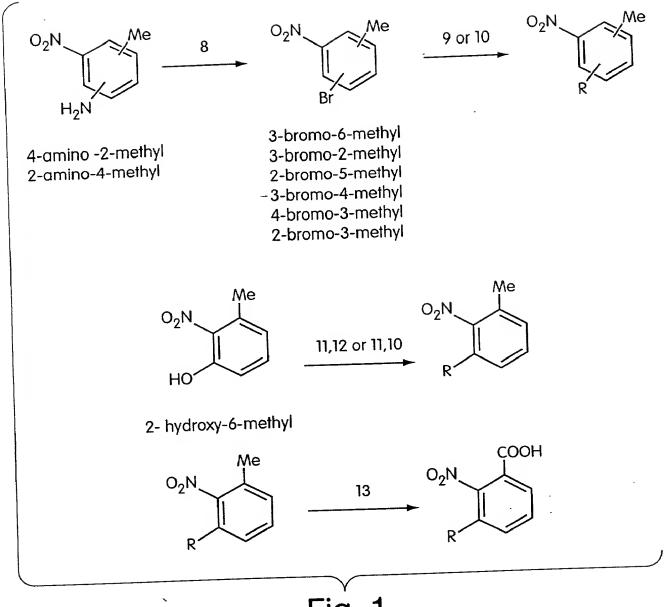

O2N
Me
H2N
8
Br
9 or 10
R
4-amino -2-methyl
2-amino-4-methyl
3-bromo-6-methyl
3-bromo-2-methyl
2-bromo-5-methyl
3-bromo-4-methyl
4-bromo-3-methyl
2-bromo-3-methyl
HO
11,12 or 11,10
2- hydroxy-6-methyl
13
COOH

Fig. 1

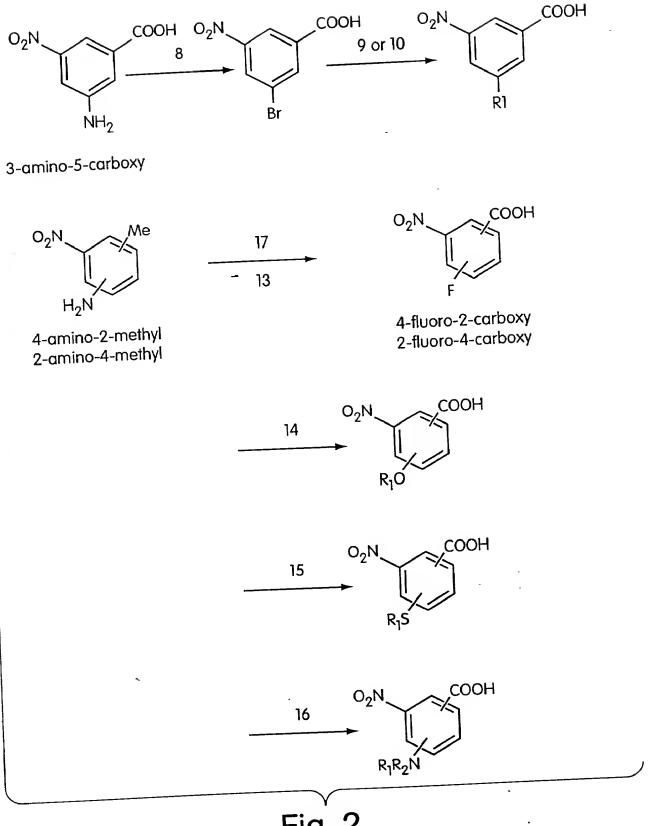

O2N
COOH
NH2
8
Br
9 or 10
R1
3-amino-5-carboxy
Me
H2N
4-amino-2-methyl
2-amino-4-methyl
17
13
F
4-fluoro-2-carboxy
2-fluoro-4-carboxy
14
R1O
15
R1S
16
R1R2N

Fig. 2

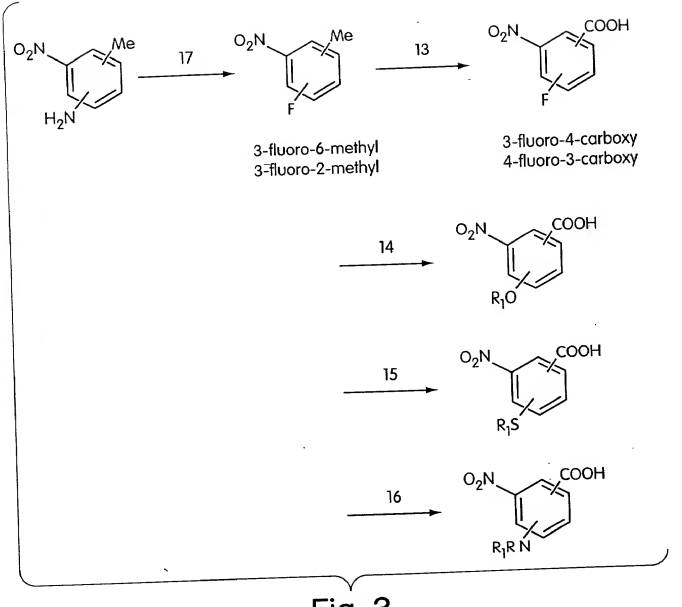

O2N
Me
H2N
17
O2N
Me
F
3-fluoro-6-methyl
3-fluoro-2-methyl
13
O2N
COOH
F
3-fluoro-4-carboxy
4-fluoro-3-carboxy
14
O2N
COOH
R1O
15
O2N
COOH
R1S
16
O2N
COOH
R1R N

Fig. 3

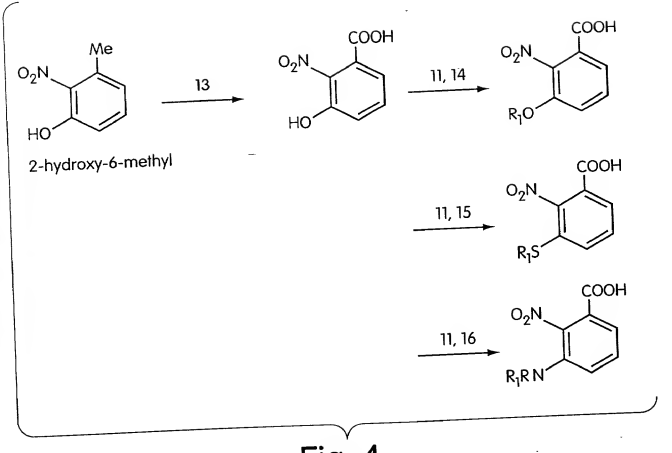

Me
O_2N
HO
2-hydroxy-6-methyl
13
COOH
O_2N
HO
11, 14
COOH
O_2N
R_1O
11, 15
COOH
O_2N
R_1S
11, 16
COOH
O_2N
R_1RN

Fig. 4

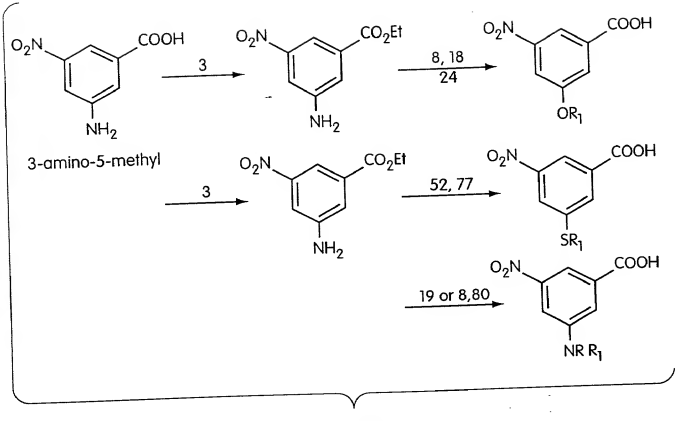

O2N
COOH
NH2
3
CO2Et
8, 18
24
OR1
3-amino-5-methyl
52, 77
SR1
19 or 8,80
NR R1

Fig. 5

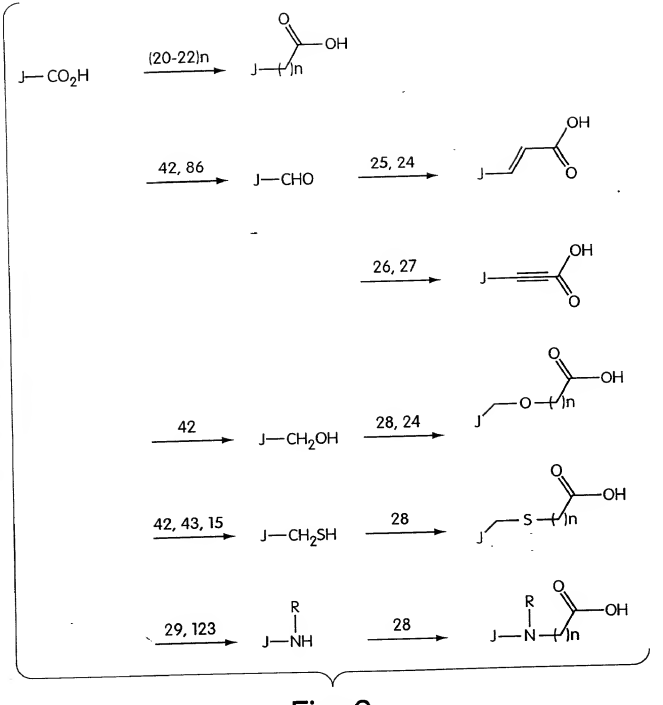

J—CO2H
(20-22)n
OH
J—( )n
42, 86
J—CHO
25, 24
OH
J
O
26, 27
OH
J
O
42
J—CH2OH
28, 24
O
OH
J
O—( )n
42, 43, 15
J—CH2SH
28
O
OH
J
S—( )n
29, 123
R
J—NH
28
R
O
OH
J—N—( )n

Fig. 6

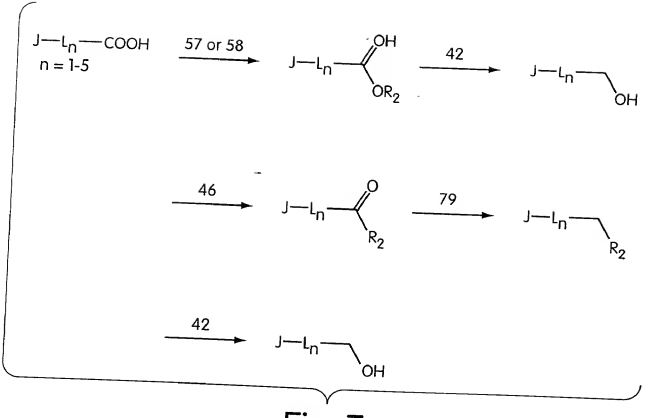


Fig. 7

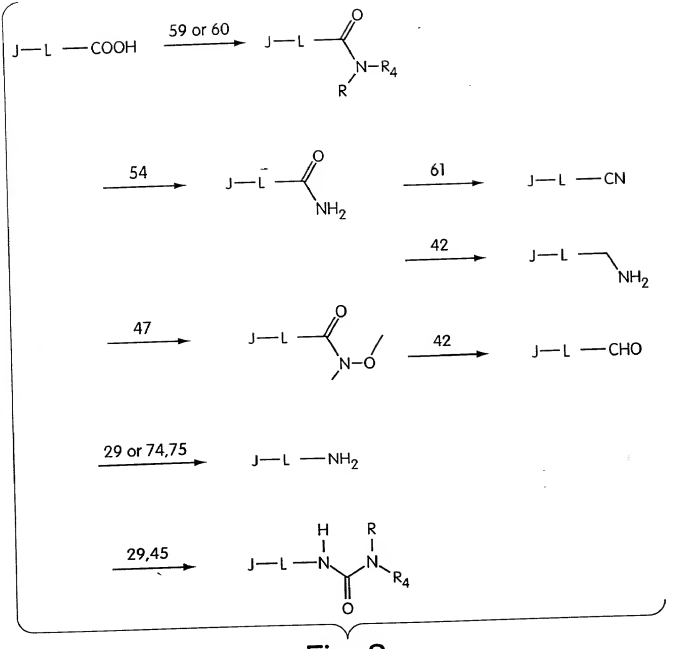

J—L —COOH
59 or 60
J—L
O
N—R4
R
54
J—L
O
NH2
61
J—L —CN
42
J—L
NH2
47
J—L
O
N—O
42
J—L —CHO
29 or 74,75
J—L —NH2
29,45
J—L
H
N
R
N
R4
O

Fig. 8

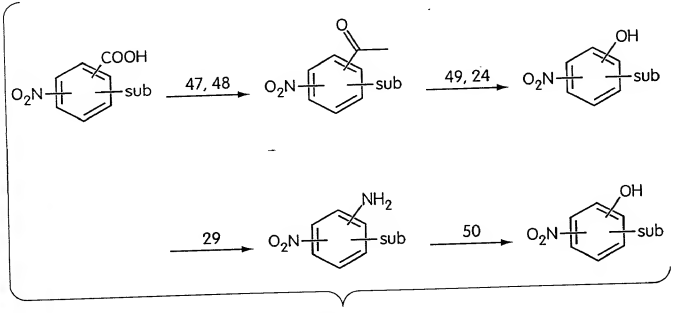

COOH
O_2N
sub
47, 48
O
O_2N
sub
49, 24
OH
O_2N
sub
29
NH_2
O_2N
sub
50
OH
O_2N
sub

Fig. 9

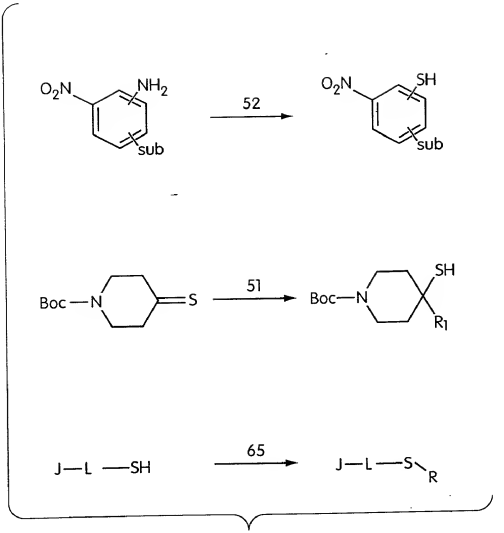


Fig. 10

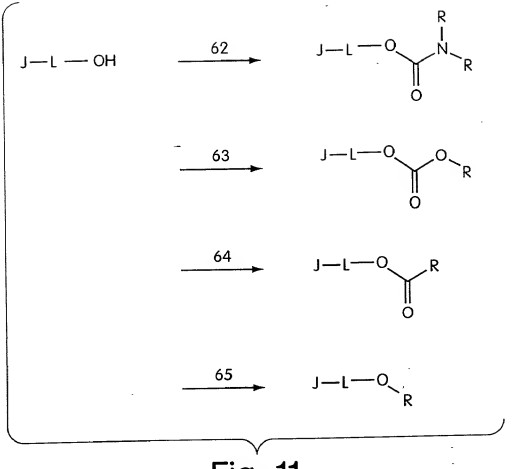


Fig. 11

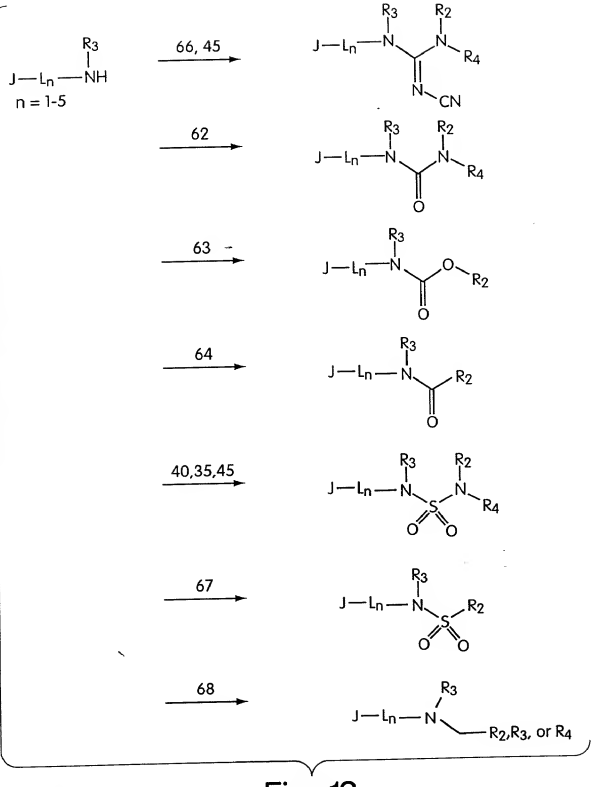


Fig. 12

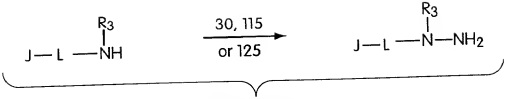


Fig. 13

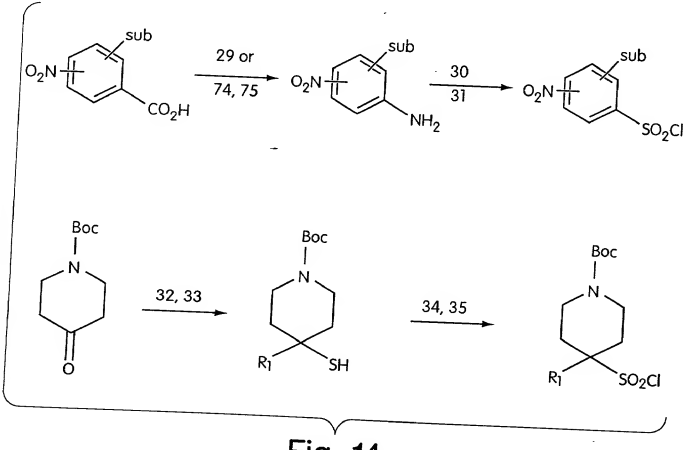

sub
O_2N
CO_2H
29 or
74, 75
sub
O_2N
NH_2
30
31
sub
O_2N
SO_2Cl
Boc
N
O
32, 33
Boc
N
R_1
SH
34, 35
Boc
N
R_1
SO_2Cl

Fig. 14

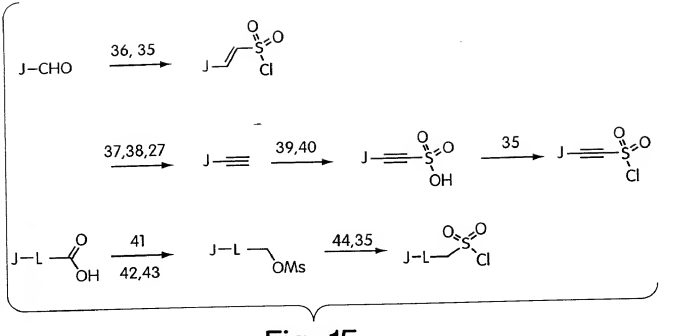


Fig. 15

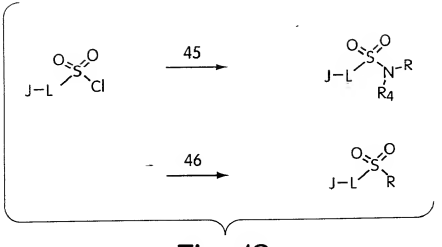
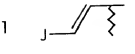
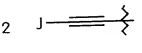
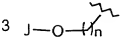


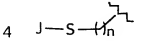
Fig. 16

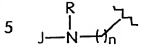
J-L =

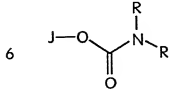


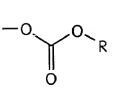


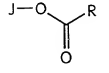


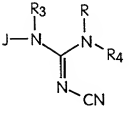


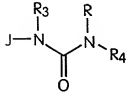


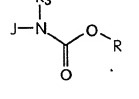


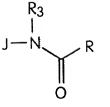


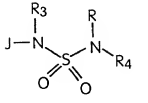


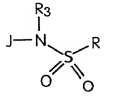


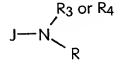


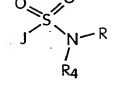












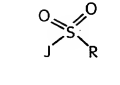


Fig. 17

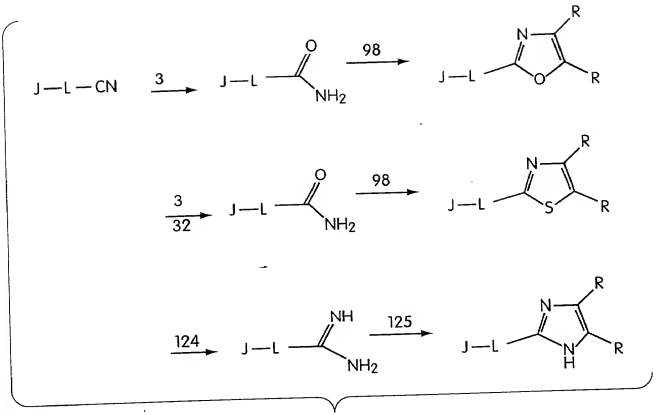

J—L—CN
3
J—L
O
NH2
98
J—L
N
R
O
R
3
32
J—L
O
NH2
98
J—L
N
R
S
R
124
J—L
NH
NH2
125
J—L
N
R
N
H
R

Fig. 18

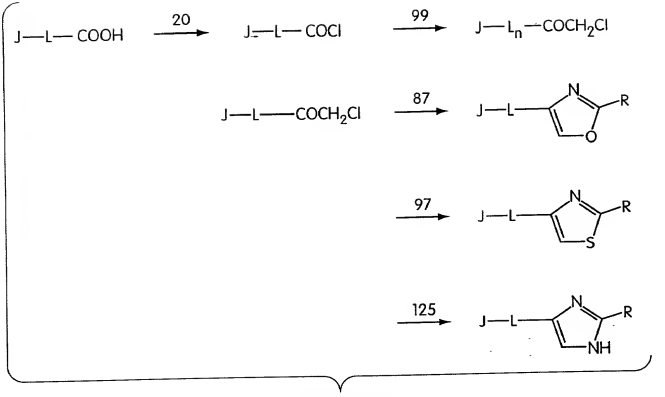


Fig. 19

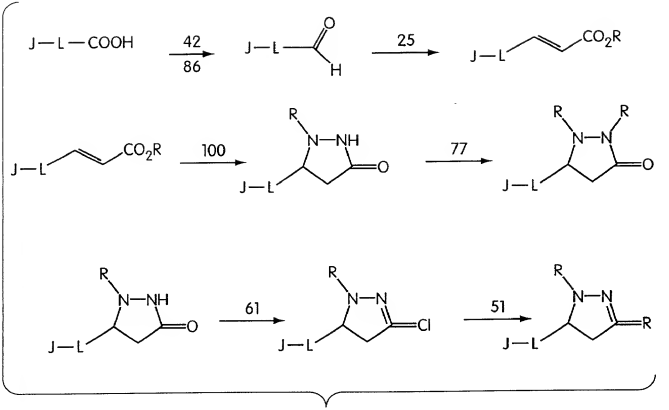

J—L—COOH
42
86
J—L
O
H
25
J—L
CO2R
J—L
CO2R
100
R
N—NH
O
J—L
77
R
N—N
R
O
J—L
R
N—NH
O
J—L
61
R
N—N
Cl
J—L
51
R
N—N
R
J—L

Fig. 20

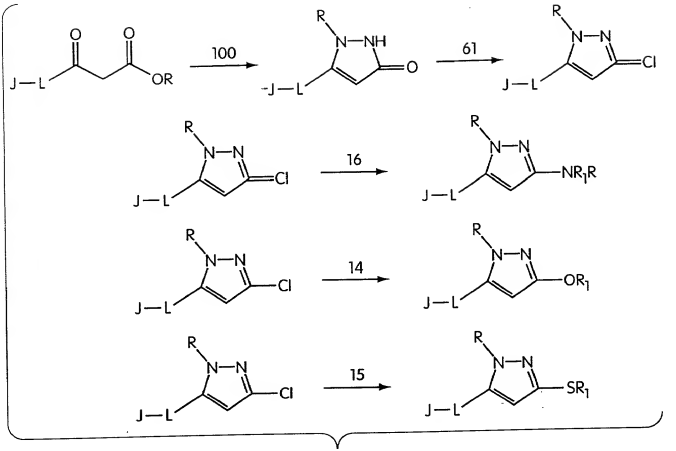


Fig. 21

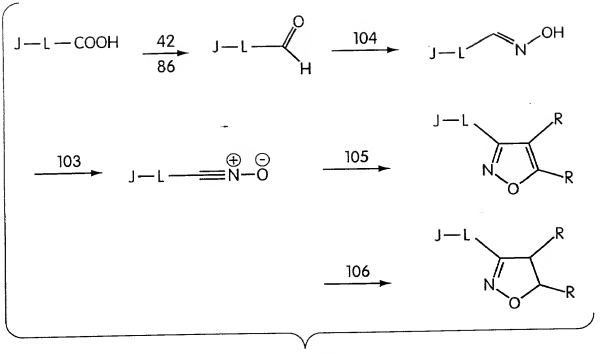


Fig. 22

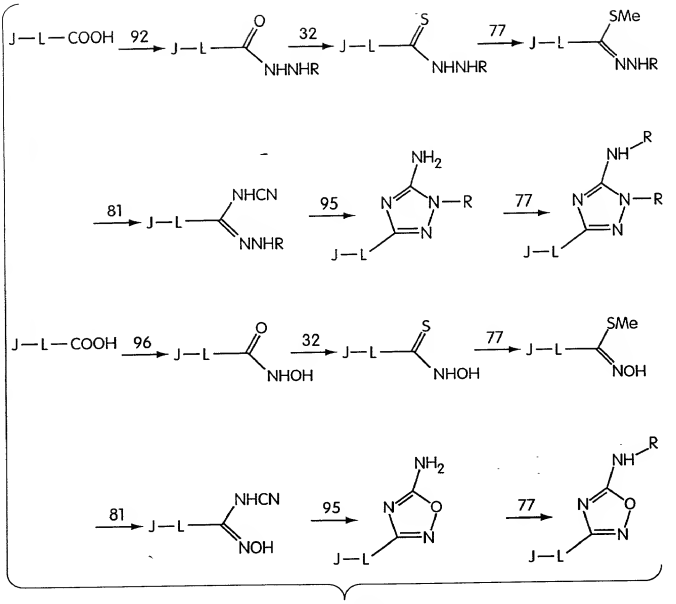

J—L—COOH
92
J—L
O
NHNHR
32
S
77
SMe
NNHR
81
NHCN
95
NH2
N
R
96
NHOH
NOH
O

Fig. 23

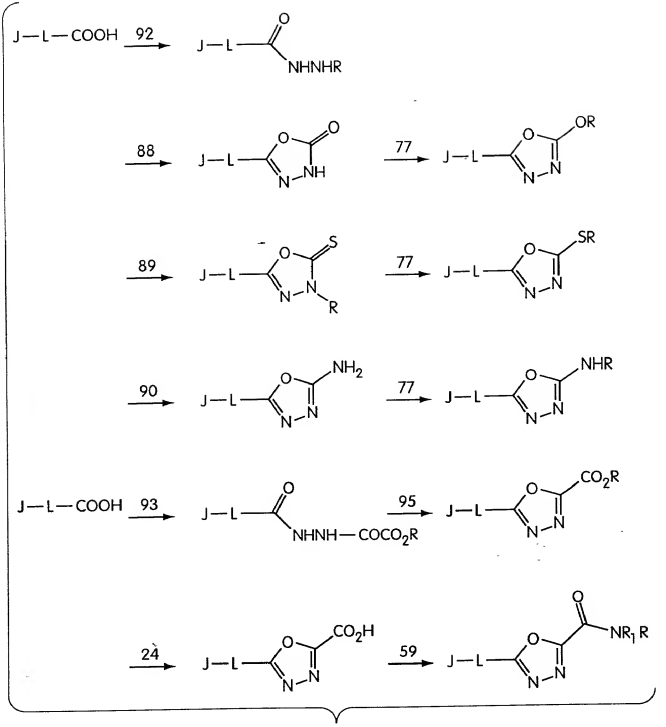

J—L—COOH
92
J—L
O
NHNHR
88
O
O
N
NH
77
OR
89
S
R
SR
90
NH2
NHR
J—L—COOH
93
NHNH—COCO2R
95
CO2R
24
CO2H
59
NR1R

Fig. 24

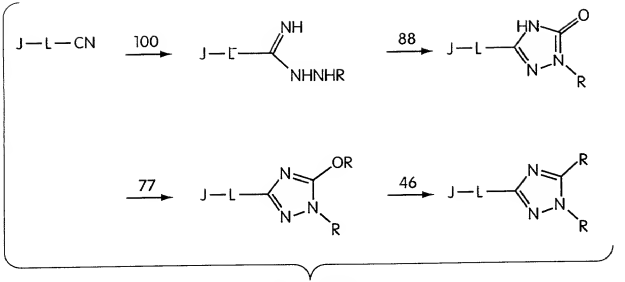


Fig. 25

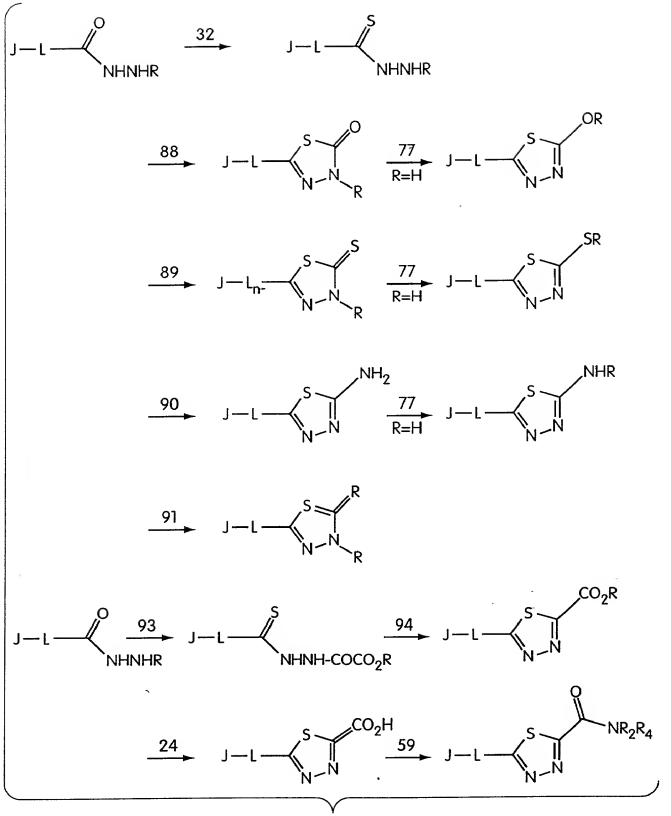

J—L
O
NHNHR
32
S
88
77
R=H
OR
89
SR
90
NH2
NHR
91
93
NHNH-COCO2R
94
CO2R
24
CO2H
59
NR2R4

Fig. 26

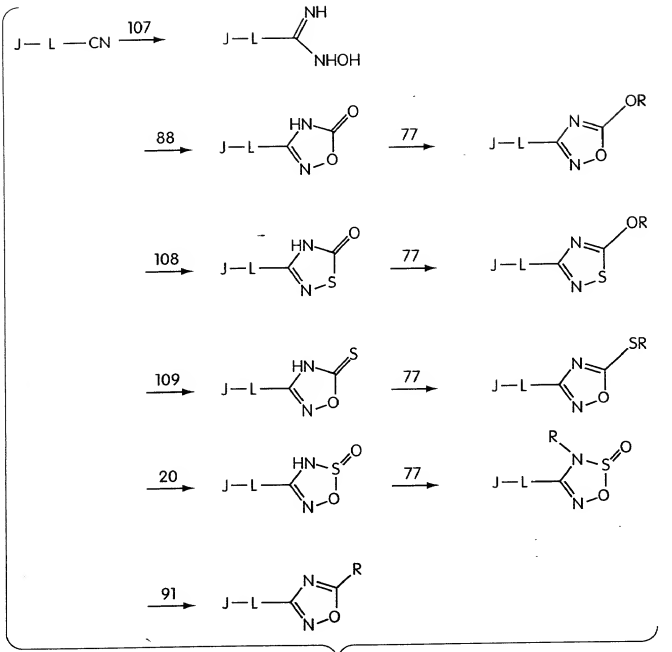


Fig. 27

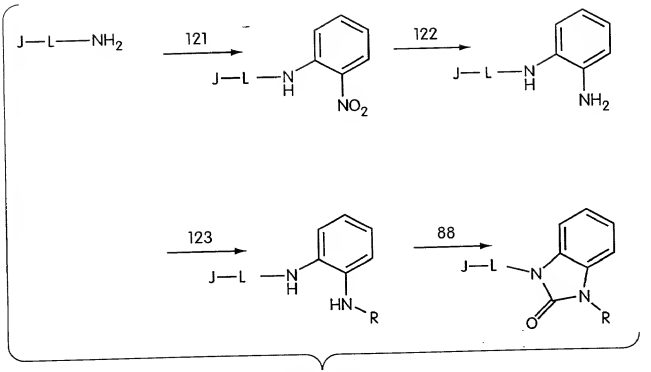


Fig. 28

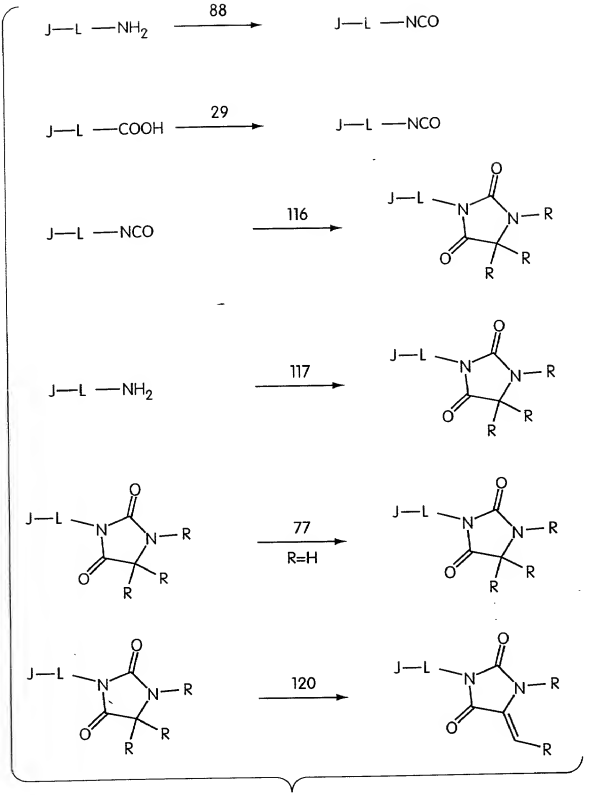

J—L —NH2
88
J—L —NCO
J—L —COOH
29
J—L —NCO
J—L —NCO
116
J—L
J—L —NH2
117
J—L
77
R=H
J—L
120
J—L
R

Fig. 29

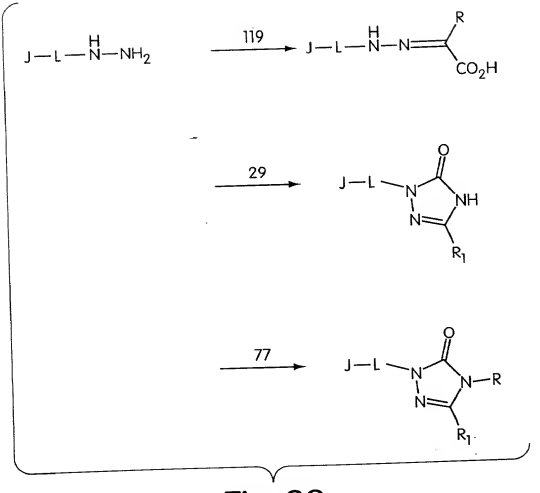


Fig. 30

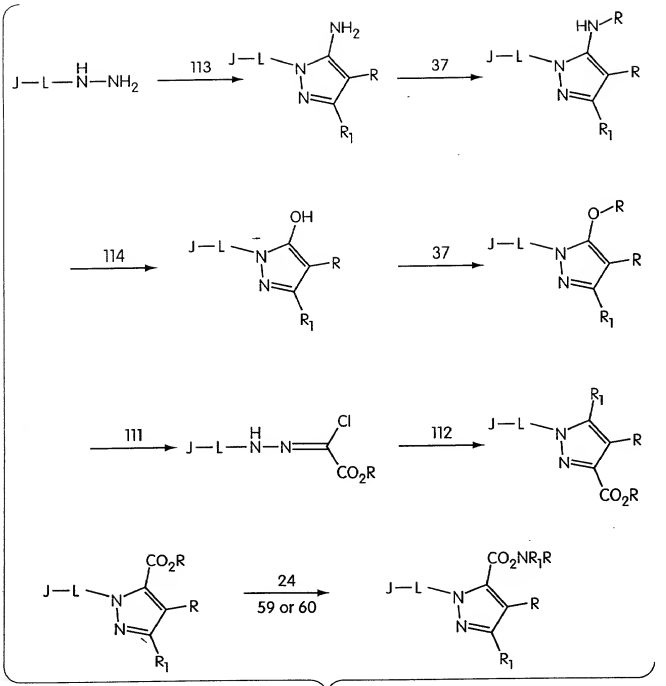

J—L—N—NH2
H
113
J—L
NH2
N
N
R
R1
37
HN
R
114
OH
O
111
J—L—N—N=
H
Cl
CO2R
112
R1
24
59 or 60
CO2NR1R

Fig. 31

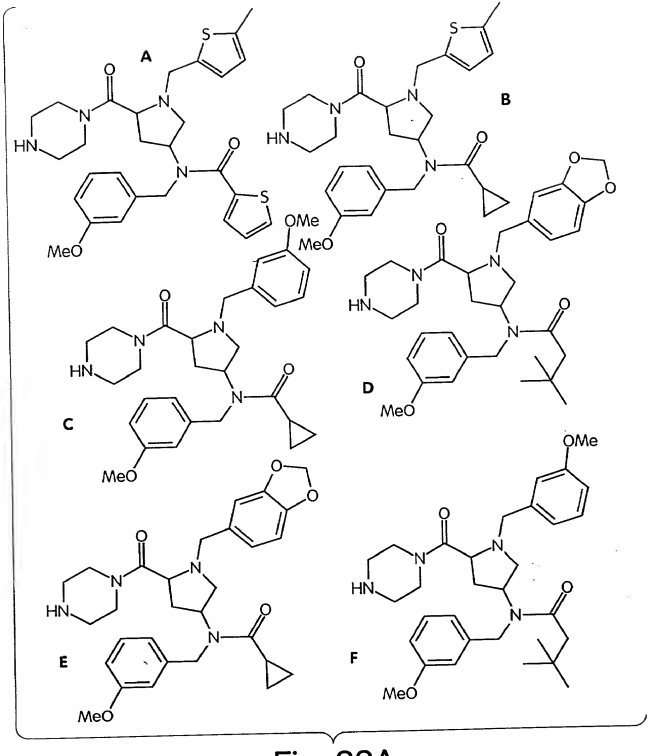


Fig. 32A

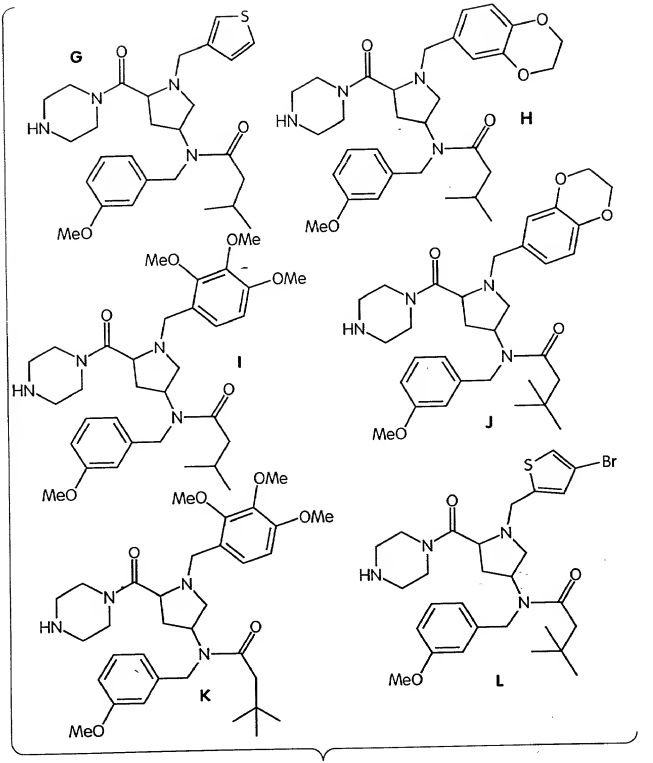


Fig. 32B

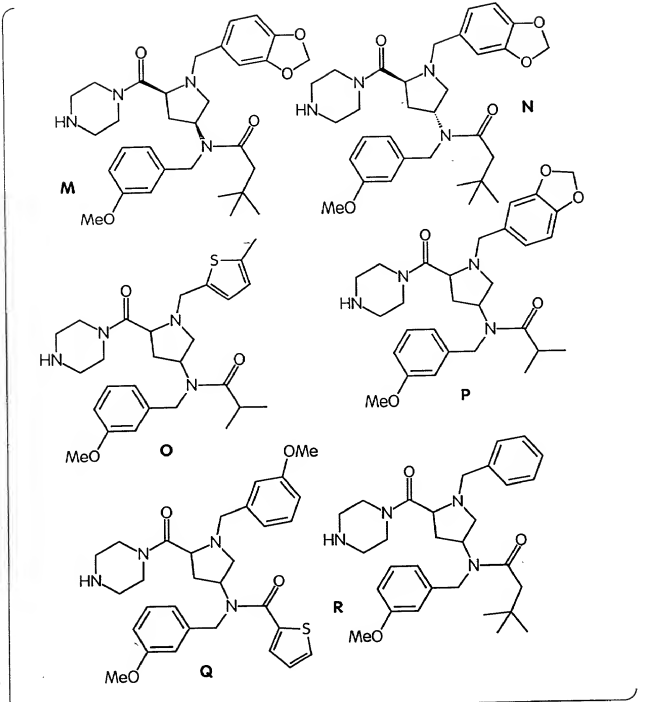


Fig. 32C

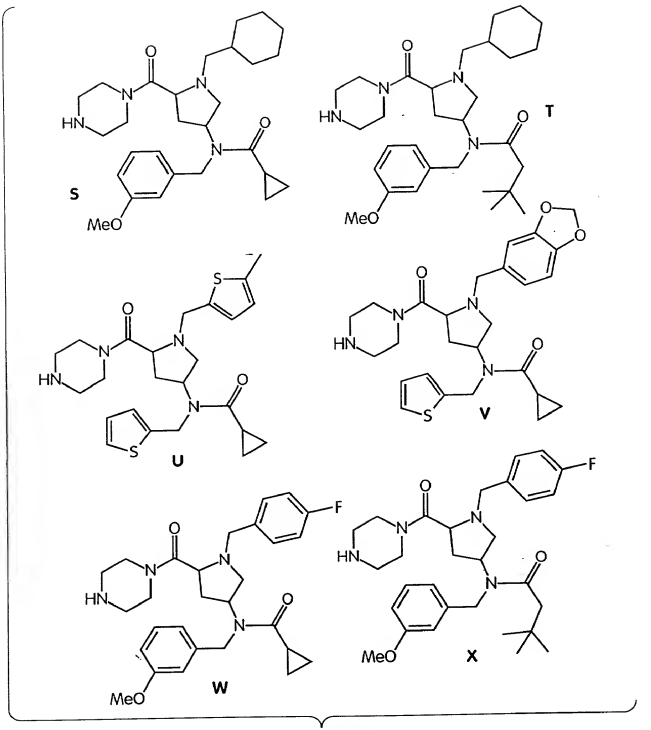


Fig. 32D

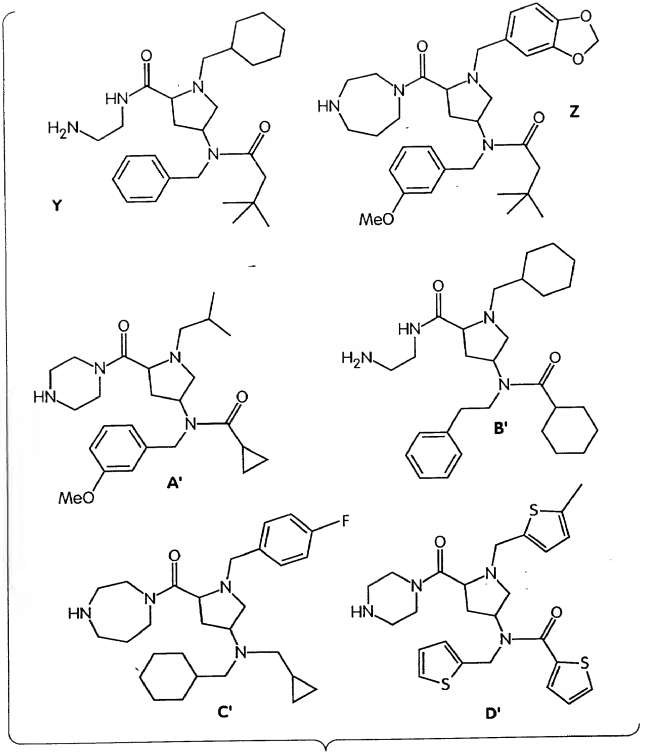


Fig. 32E

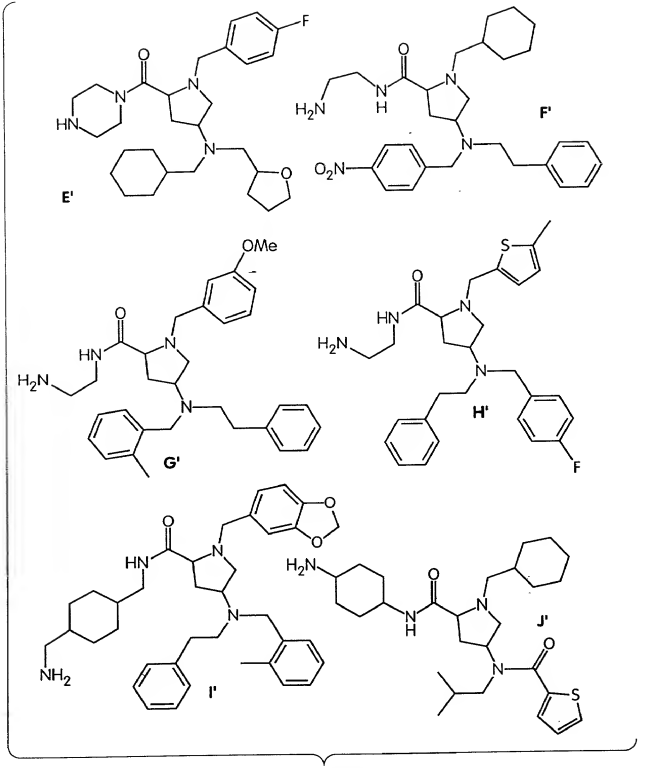


Fig. 32F

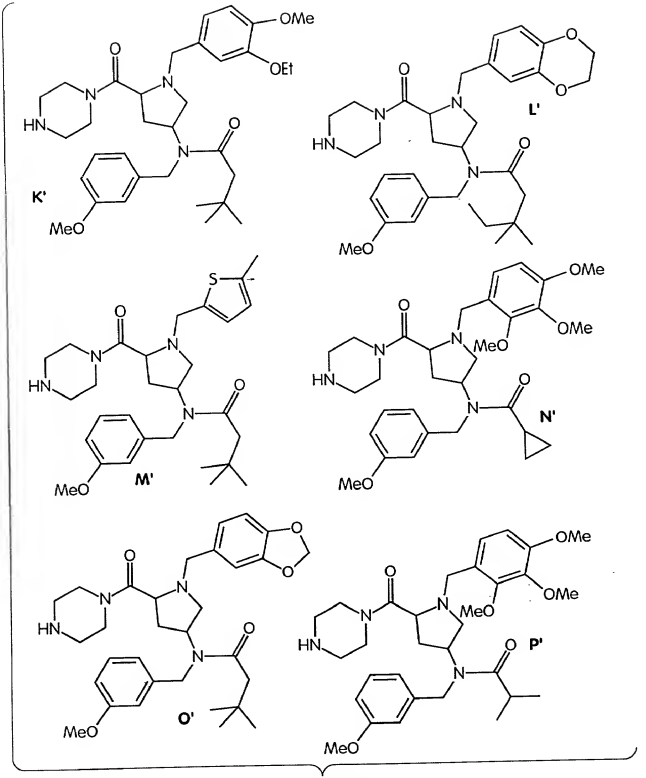


Fig. 32G

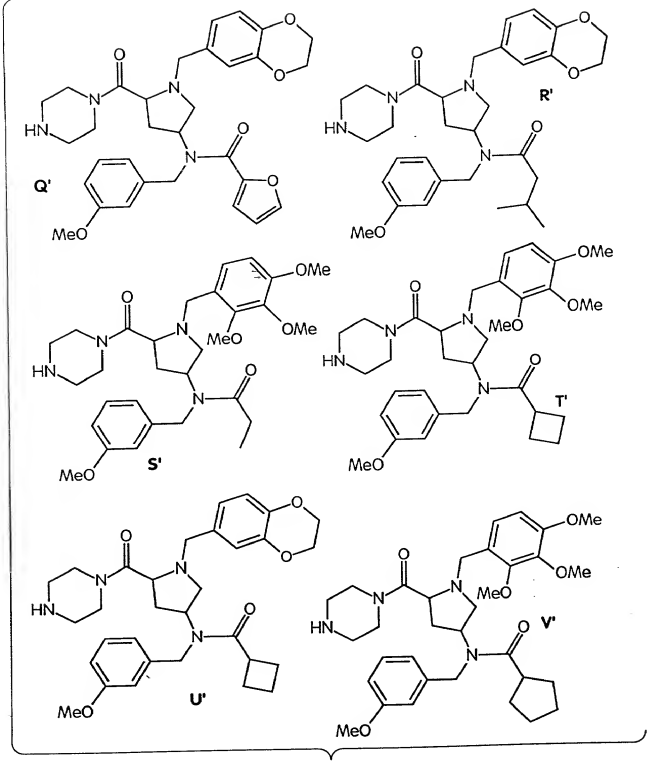


Fig. 32H

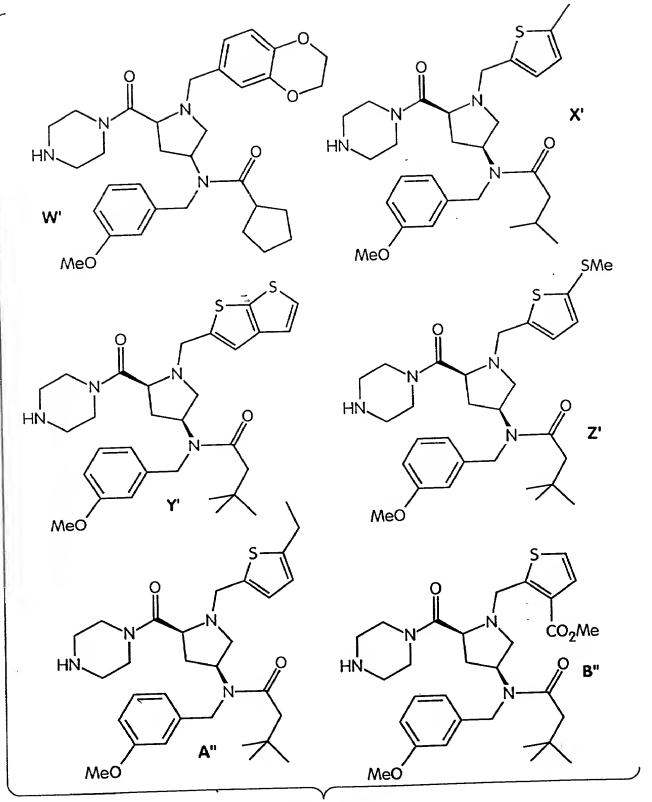


Fig. 32l

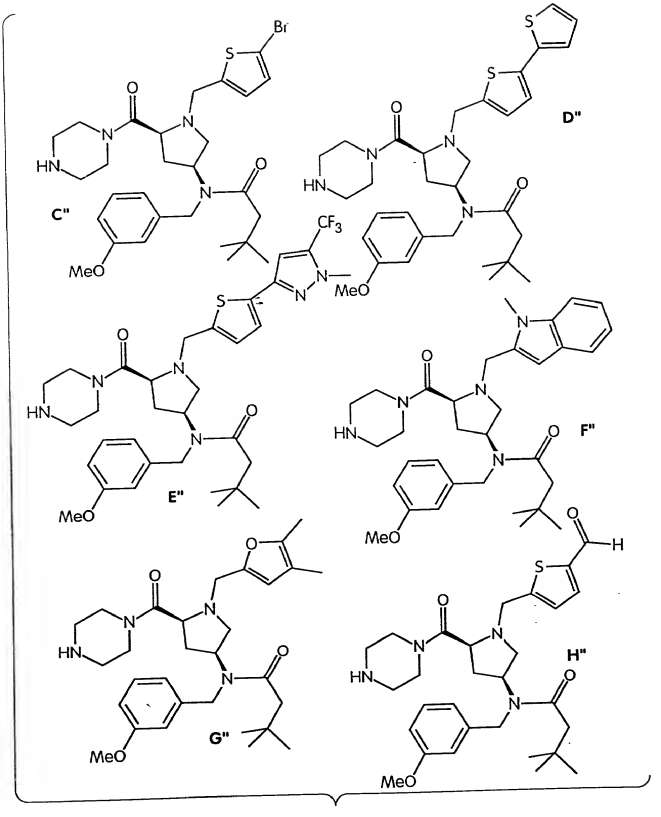


Fig. 32J

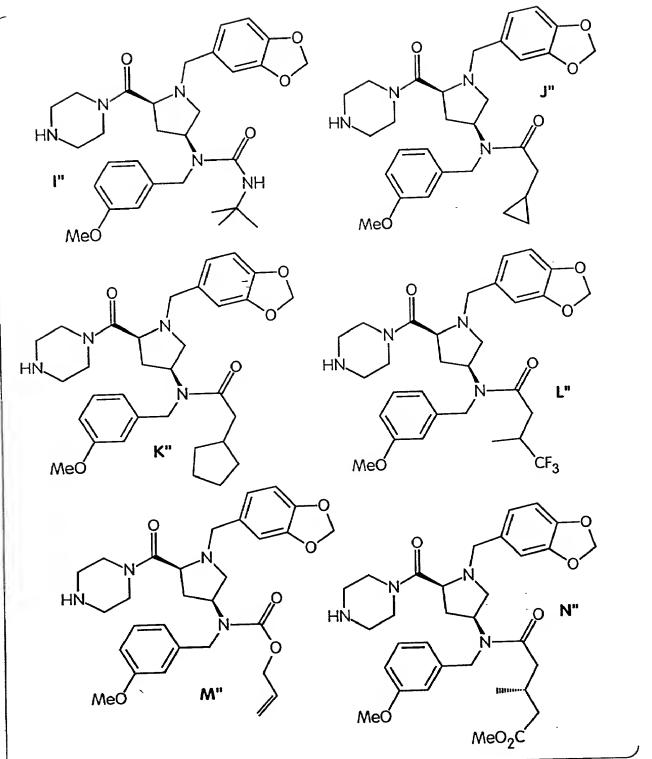


Fig. 32K

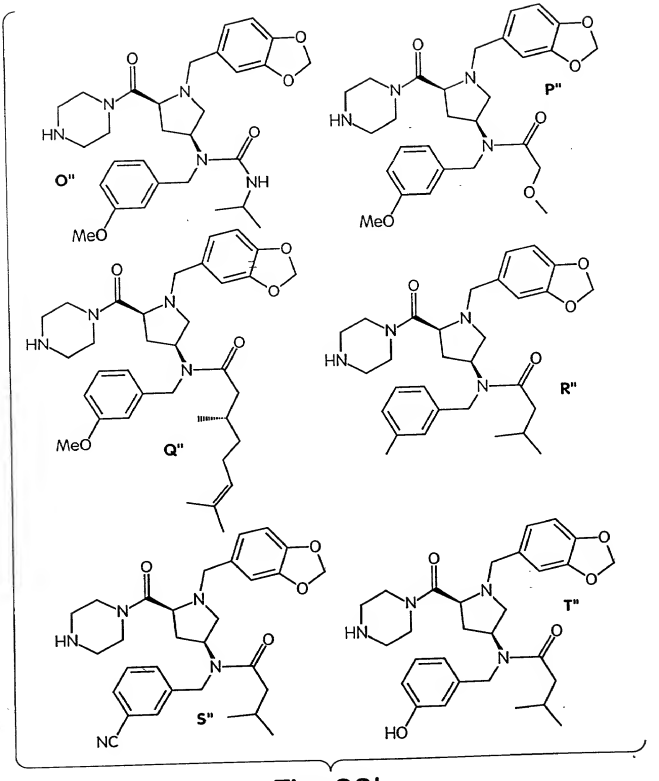


Fig. 32L

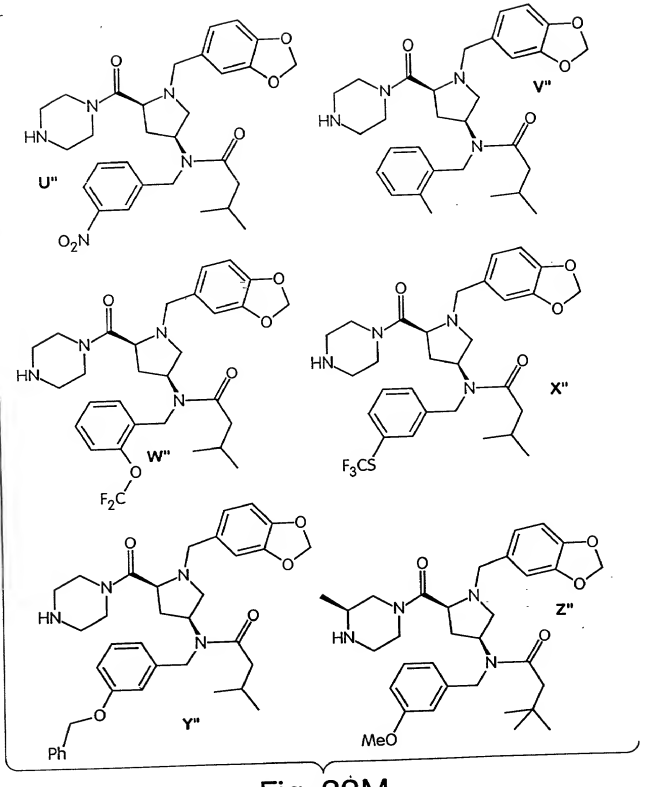


Fig. 32M

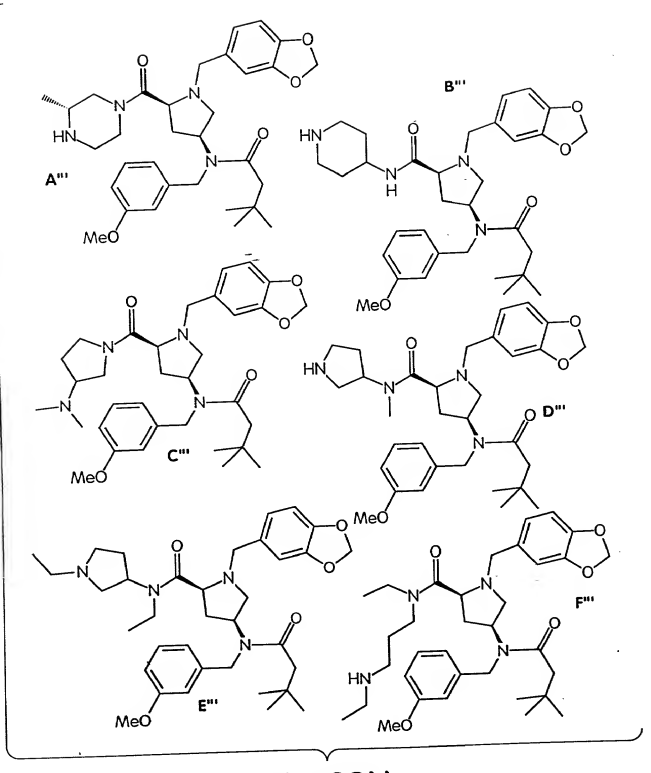


Fig. 32N

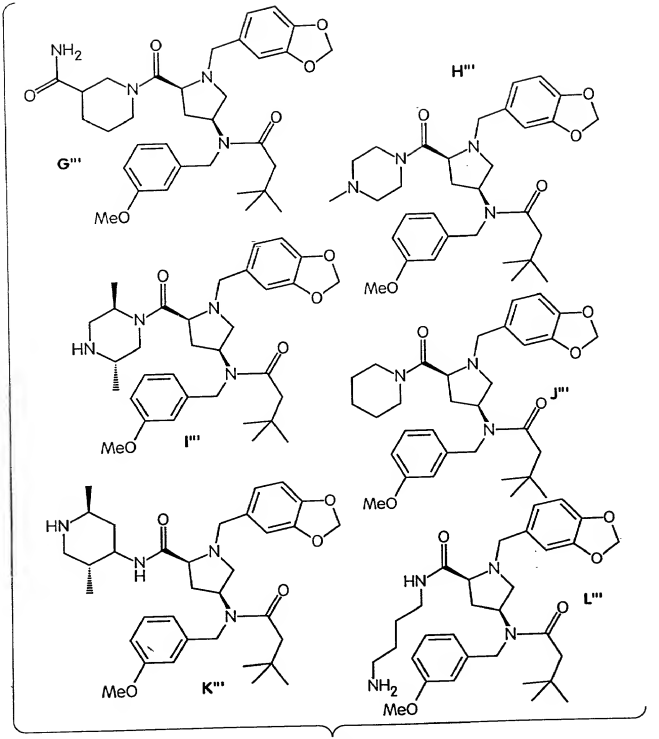


Fig. 32O

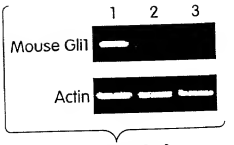


Fig. 33A

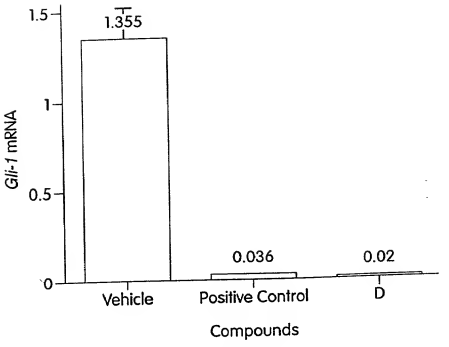


Fig. 33B

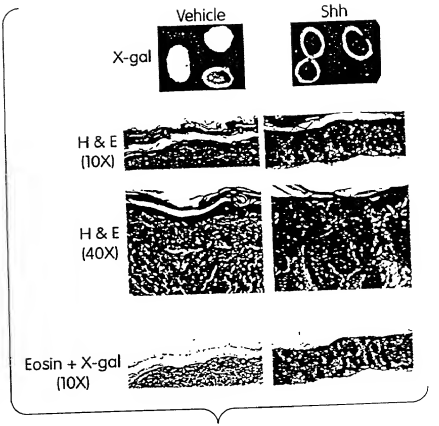


Fig. 34A

Shh treated E17.5 mouse skin punch

Fig. 34B

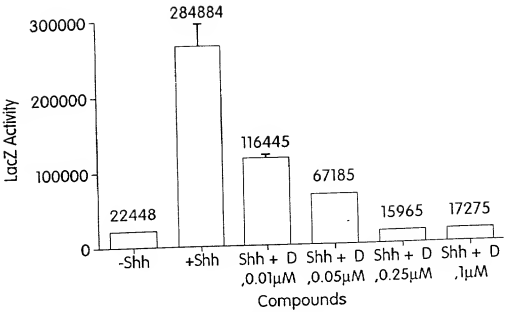


Fig. 35A

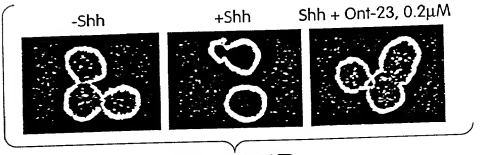


Fig. 35B

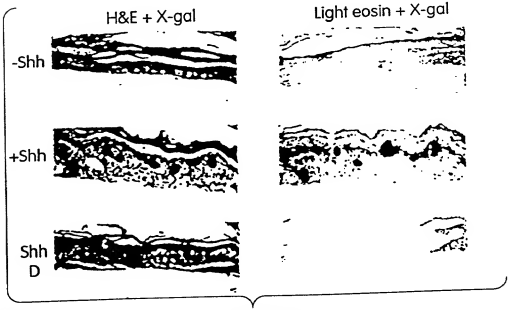


Fig. 35C

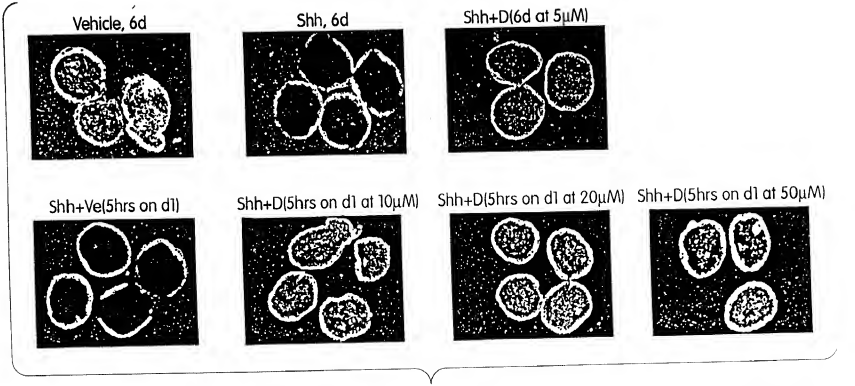


Fig. 36

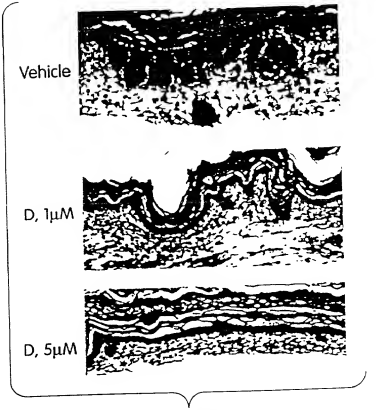


Fig. 37A

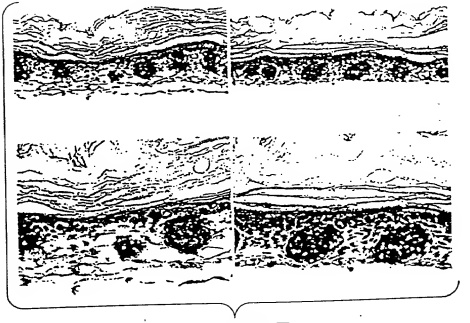


Fig. 37B

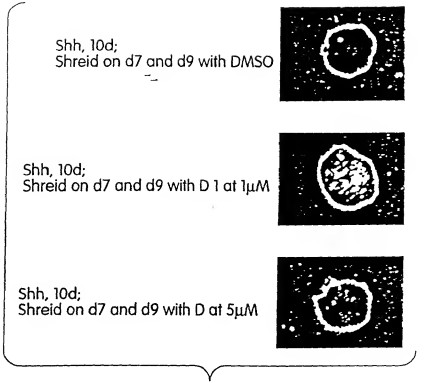

Shh, 10d;
Shreid on d7 and d9 with DMSO
Shh, 10d;
Shreid on d7 and d9 with D 1 at 1μM
Shh, 10d;
Shreid on d7 and d9 with D at 5μM

Fig. 38A

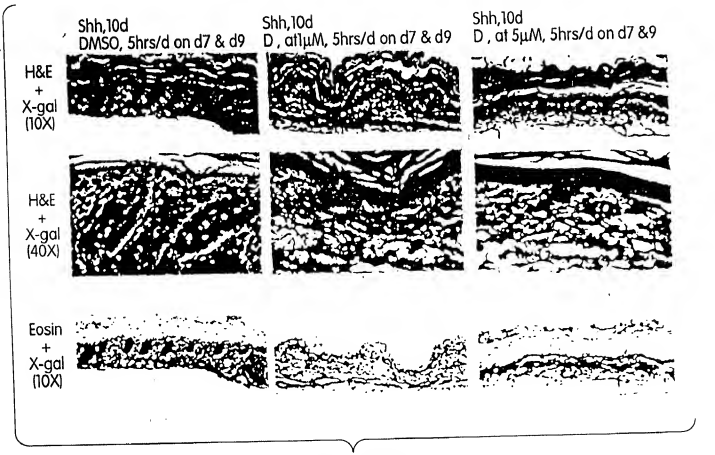

Shh,10d
DMSO, 5hrs/d on d7 & d9
Shh,10d
D , at1μM, 5hrs/d on d7 & d9
Shh,10d
D , at 5μM, 5hrs/d on d7 &9
H&E
+
X-gal
(10X)
H&E
+
X-gal
(40X)
Eosin
+
X-gal
(10X)

Fig. 38B

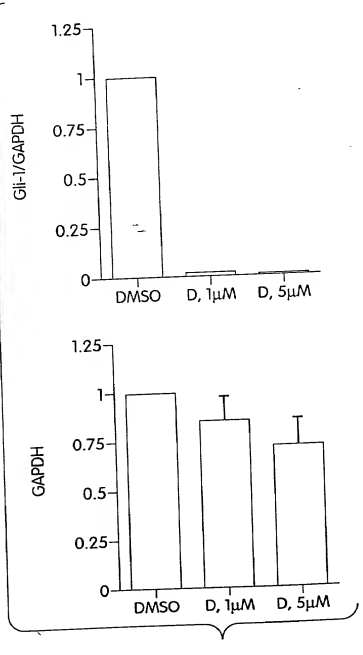

Gli-1/GAPDH
1.25
1
0.75
0.5
0.25
0
DMSO
D, 1μM
D, 5μM
GAPDH
1.25
1
0.75
0.5
0.25
0
DMSO
D, 1μM
D, 5μM

Fig. 38C

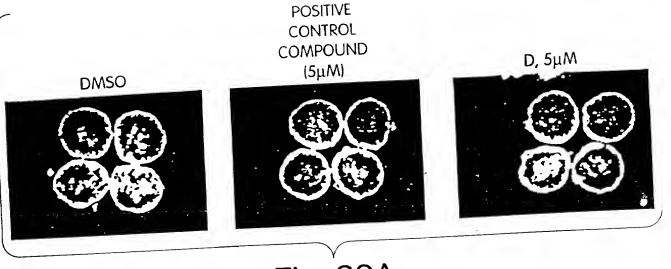


Fig. 39A

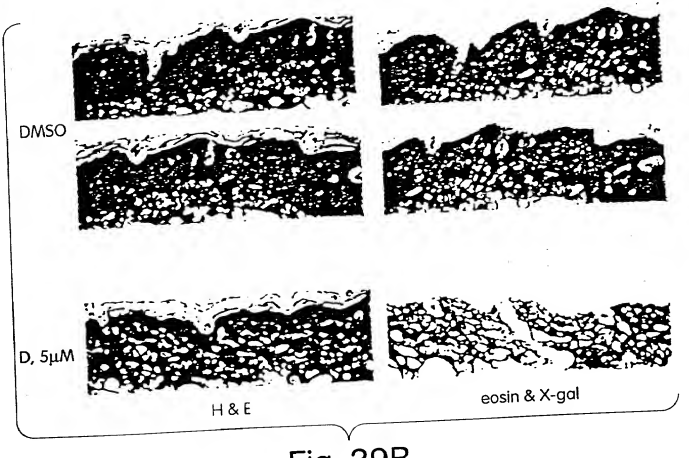


Fig. 39B

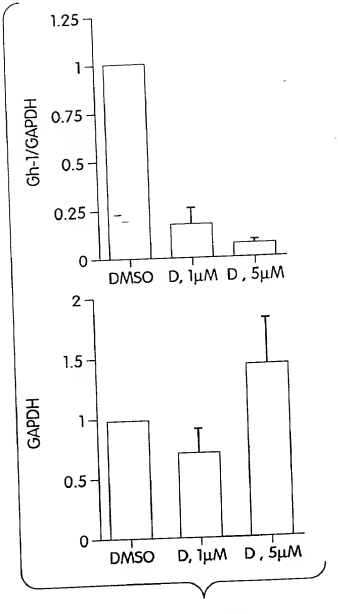

Gh-1/GAPDH
1.25
1
0.75
0.5
0.25
0
DMSO
D, 1μM
D , 5μM
GAPDH
2
1.5
1
0.5
0
DMSO
D, 1μM
D , 5μM

Fig. 39C

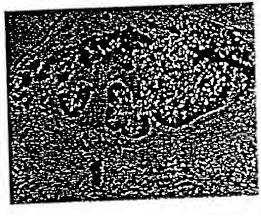


Fig. 40A

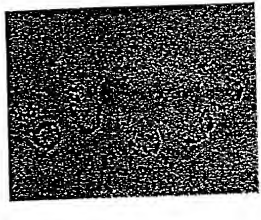


Fig. 40B

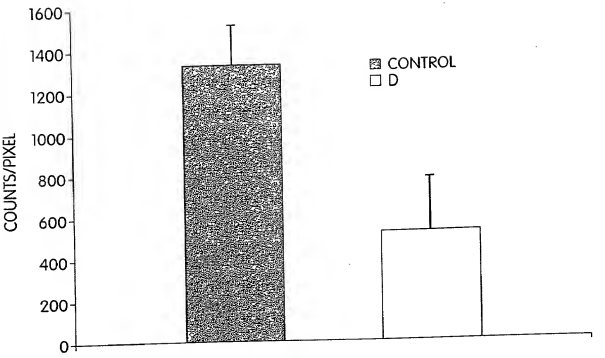


Fig. 41